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AN ORDINAL
CLASSIFICATION FOR THE
FAMILIES OF FLOWERING
PLANTS

*The Angiosperm Phylogeny Group*¹

ABSTRACT

Recent cladistic analyses are revealing the phylogeny of flowering plants in increasing detail, and there is support for the monophyly of many major groups above the family level. With many elements of the major branching sequence of phylogeny established, a revised suprafamilial classification of flowering plants becomes both feasible and desirable. Here we present a classification of 462 flowering plant families in 40 putatively monophyletic orders and a small number of monophyletic, informal higher groups. The latter are the monocots, commelinoids, eudicots, core eudicots, rosids including eurosids I and II, and asterids including euasterids I and II. Under these informal groups there are also listed a number of families without assignment to order. At the end of the system is an additional list of families of uncertain position for which no firm data exist regarding placement anywhere within the system.

Why rearrange families, still less formalize orders? Higher-level classifications, the grouping of species into families, orders, etc., are needed as reference tools not only in systematics but also in many other branches of biology. Knowledge of phylogenetic relationships of major groups of organisms, that is, a phylogenetic perspective, is becoming increasingly important, and hence the need for a phylogenetic classification as a reference tool is also becoming imperative.

Our primary focus is on orders with a secondary emphasis on families of flowering plants. The family is central in flowering plant systematics. For example, in studying an unknown plant we usually first identify it to family. The orders, on the other hand, have until quite recently been of little importance, either being morphologically unrecognizable or in most cases lacking any evolutionary coherence (Heywood, 1977; Merxmüller, 1977). However, orders are useful in teaching, for studying

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family relationships, and in positioning genera of doubtful affinity. The didactic value of suprafamilial groupings has been emphasized by various authors (e.g., Dahlgren, 1975; Thorne, 1976; Davis, 1978; Takhtajan, 1997). This value is even more evident now that the phylogeny of flowering plants is being disclosed in increasing detail. Many of the orders recognized by earlier authors are not monophyletic, yet there is a pressing need for names to communicate the knowledge of monophyletic groupings of families that are becoming evident. With the major branching sequence of flowering plant phylogeny becoming clearer, a revised familial and ordinal classification is feasible.

Flowering plant classification systems from the late 1970s seemed to be stable and show substantial agreement, but this stability has been rudely shattered as new kinds of data and new methods of analyzing conventional data have become firmly established (Stevens, 1986). Classifications such as those by Cronquist (1981) and Takhtajan (1980), although still in frequent use, have become outdated. Of more recent classifications, that by Goldberg (1986) of the dicotyledons predates the advent of molecular studies at higher levels, as does that by Dahlgren et al. (1985) of the monocotyledons. However, the latter incorporated much new data and provided synapomorphy schemes for many groups. The recent system of Takhtajan (1997), although extremely elaborate, is made less useful because his propensity for splitting often results in well-known families being dismembered, then reassembled as orders. Furthermore, the findings of recent molecular studies, despite being cited, have hardly influenced his classification.

We conclude that there is a great need for a new, phylogenetic classification of flowering plants, providing names for major monophyletic groups of families. Obviously, it is not possible, nor is it desirable, to name all clades in the entire phylogeny. Any such complete classification would be so cumbersome that it would be useless for general communication. Systematists need to come to some kind of agreement concerning which clades to recognize and name, so that a reference tool of broad utility can be formulated and used to discuss diversity. An ordinal classification of flowering plant families is here proposed for that purpose (pp. 538–542). It recognizes a selected number of monophyletic suprafamilial groups, that is, clades in the phylogeny of flowering plants that are supported by at least one, and often several, lines of evidence. These are clades to which we find it useful to refer when we communicate information about higher-level interrelationships of the flowering plants.

We note that the selection of clades to be represented in a formal classification is different from the procedure of naming these clades. The latter issue of biological nomenclature in phylogenetics is currently much debated (e.g., Cantino et al., 1997; de Queiroz, 1997; Lidén et al., 1997), but we have not adopted any “phylogenetic naming” sensu de Queiroz and Gauthier (1994). We operate under the current *International Code of Botanical Nomenclature* (Greuter et al., 1994) and choose to emphasize the ranks of family and order. The Linnaean categories serve as a convenient mnemonic device for remembering hierarchical relationships, but it should of course be realized that groups of the same rank are evolutionarily non-comparable units unless they are sister groups.

There are noteworthy problems when establishing the names for taxa at ordinal and other higher taxonomic levels. Until recently, little attention has been paid to the nomenclature at these levels, and our knowledge of the early literature in which such names were used is imperfect. This situation has in considerable part been rectified by Reveal's (1998) Herculean labors. The principle of priority is not mandatory for taxa above the rank of family, although authors are exhorted “generally” to follow this principle (Greuter et al., 1994). We have tried to balance priority with general usage when assigning names to orders, but even if future bibliographic work discloses earlier ordinal names, changes are not mandated.

Which clades should be recognized in classification, or in our case, how should the orders be circumscribed? Given the primary principle of monophyly, that of recognizing clades and not grades in classification, there are nevertheless many considerations to be taken into account when circumscribing taxa at ordinal as well as all other hierarchical levels above that of species. Classification is not only a matter of grouping according to the principle of monophyly, but it is also a matter of communication (note that whatever philosophy of naming is adopted, there has to be some consensus as to the clades we are going to use in general botanical communication). For us, this raises the question of ranking, that is, after having selected clades in the phylogeny to be named, they have to be assigned an appropriate place in the hierarchy, in our case, family and order (e.g., Backlund & K. Bremer, 1998; Stevens, 1998). In choosing between alternative circumscriptions it is desirable to recognize groups that are well supported. It is also useful to select groups that have some kind of easily observed morphological synapomorphies, although this may be difficult at the ordinal level and

even sometimes at the family level. Synapomorphies also often include (sometimes exclusively) anatomical, biochemical, and developmental characters.

Many of our ordinal names are already well established and used in earlier classifications and systematic treatments. So far as they represent monophyletic groups, we retain well-known orders in the interest of preserving stability. In other cases, the size of the orders comes into consideration. However, what is reasonably broad circumscription? From the point of view of memorization of names, groups of 2–6 or a few more would seem to be ideal, and there is evidence that systematists in the past have commonly recognized groups of this size (Stevens, 1997). However, with the discoveries of new species, genera, and families, the sizes of genera, families, and orders have increased, and many orders now comprise 10–20 families, or even more. Other orders contain a few families only, and if there are only two or three families in an order, “one is not far from leaving the families unplaced” (Copeland, 1957). Concerns about the doubtful value of recognizing similarly small groups have also been expressed by others (e.g., Burt, 1977). Nevertheless, we have chosen to recognize a number of small orders because these represent clades for which monophyly and relationships are well supported, and this better conveys the interrelationships of the families included rather than leaving them unclassified to order.

In general, we adopt a broad circumscription of the orders. We recognize 462 families and 40 orders of flowering plants. Cronquist (1981) recognized 321 families and 64 orders, Thorne (1992) 440 families and 69 orders, and Takhtajan (1997) no less than 589 families in 232 orders. Our wider ordinal circumscription is not because finer details of the phylogeny within the orders are as yet unclear, but because we think the classification will be more useful with a limited number of larger orders. As we develop more firmly supported phylogenies within and among orders, groups at the infraordinal and supraordinal levels can be recognized. Hence we anticipate that there will be little need to change the circumscription of the orders recognized here, except for inclusion of yet unassigned families of unknown systematic position and the transfer of misplaced families. Additional orders may have to be recognized as the phylogenetic relationships of families that are not yet placed are clarified. Discussion as to whether a widely accepted monophyletic group should be a superorder, order, suborder, or family is largely vac-

uous because this will always be an arbitrary decision.

Takhtajan (1997) opted in favor of “smaller, more natural families and orders, which are more coherent and better-defined, where characters are easily grasped, and which are more suitable for information retrieval and phylogenetic studies, including cladistic analyses (e.g., because it reduces polymorphic codings).” However, the size of a group has nothing to do with its “naturalness.” For a smaller group, one will often be able to say more about all of its constituent members, and so the characters may be more easily grasped. However, segregates of well established monophyletic families like Rubiaceae (Gentianales) or Asteraceae (Asterales) would by Takhtajan’s generalization also be more natural; by this criterion, the smaller the group, the more natural it will necessarily be, so there is no ranking criterion to be derived from “naturalness.” If by “more natural” is meant “has more synapomorphies” then this, too, is incorrect; the number of synapomorphies is not connected to the size of the group or the hierarchical level at which it is recognized.

In our classification, these considerations have had little impact. The principle of monophyly in combination with the desirability of maintaining already well established and familiar entities has largely formed the ordinal classification. Monofamilial orders (and monogeneric families) are avoided as much as possible, minimizing redundancy in classification. In a few cases we have, however, recognized some monofamilial orders (Ceratophyllales, Acorales, Arecales) because these are sister groups of more than one other order. Hence, the families of these monofamilial orders cannot be included in any other order without violating monophyly.

The principle of monophyly in combination with the mandatory usage of the family category (Greuter et al., 1994) may lead to the recognition of many small families. For example, in Dipsacales, if Dipsacaceae and Valerianaceae are to be retained as families separate from Caprifoliaceae, the principle of monophyly requires the recognition also of Dier Villaceae, Linnaeaceae, and Morinaceae (Backlund & K. Bremer, 1998; Backlund & Pyck, 1998). This is because each of these latter families is the sister group of more than one family so they cannot be merged with any other family without violating monophyly. Similar considerations apply at the ordinal level. Unfortunately, no absolute guidelines as to reasonable practice can be offered, but we simply observe that caution is always in order.

In other cases there are small families that may be reduced to synonymy of their sister group if the

latter consists of a single family. Examples are *Cambaceae*, which may be merged with *Nymphaeaceae*, and *Kingdoniaceae*, which may be merged with *Circaeasteraceae* (Ranunculales). Such commonly recognized families that nevertheless may be merged with their sister family are in our classification placed within square brackets below the family with which they may be merged (in Ranunculales either *Fumariaceae* or both *Fumariaceae* and *Pteridophyllaceae* may be merged with *Papaveraceae*; alternatively, either *Pteridophyllaceae* or both *Fumariaceae* and *Pteridophyllaceae* may be retained as distinct).

We do not attempt to thoroughly revise family circumscriptions. In general we follow recent authors and attempt to recognize as many monophyletic families as possible. It should be emphasized, however, that following additional investigation some families listed below may be shown to be non-monophyletic; revised circumscriptions, either by merging or splitting, into monophyletic taxa are not yet possible given our current knowledge. Examples are *Euphorbiaceae* and *Flacourtiaceae* of Malpighiales (Källersjö et al., 1998) and several families of Myrtales (Conti et al., 1996; Gadek et al., 1996) and core Caryophyllales (which comprise *Achatocarpaceae*, *Aizoaceae*, *Amaranthaceae*, *Basellaceae*, *Cactaceae*, *Caryophyllaceae*, *Didiereaceae*, *Molluginaceae*, *Nyctaginaceae*, *Phytolaccaceae*, *Portulacaceae*, *Sarcobataceae*, and *Stegnospermataceae*; Hershkovitz & Zimmer, 1997). Other probably non-monophyletic families that cannot yet be recircumscribed are *Boraginaceae* (euasterids I; Chase et al., 1993), *Scrophulariaceae* (Lamiales; Olmstead & Reeves, 1995), and *Santalaceae* (Santalales; Nickrent & Duff, 1996; Nickrent et al., 1998). *Brassicaceae* (Brassicales) include also the former, paraphyletic *Capparaceae* (*Brassicaceae* sensu stricto being nested inside *Capparaceae*; Judd et al., 1994; Rodman et al., 1996). A supposedly parallel case comprises *Apiaceae* and *Araliaceae* (Apiales), since the former have been assumed to be nested inside the latter (Plunkett et al., 1996). However, with a transfer of *Hydrocotyloideae* from *Apiaceae* to *Araliaceae*, it seems that two monophyletic families can be recognized, only a few genera remaining unplaced (Plunkett et al., 1997). Delimitation of *Bombacaceae*, *Malvaceae*, *Sterculiaceae*, and *Tiliaceae* (Malvales) is problematical, and only *Malvaceae* are monophyletic (Alverson et al., 1998; Bayer et al., 1999). Here all four are treated together as a single monophyletic family, *Malvaceae* sensu lato (Judd & Manchester, 1997).

Our proposed classification is a modification of

that conceived by Bremer et al. (1995, 1996, 1997) and since 1996 available on the Internet (Bremer et al., 1998). This classification is based on various recently published mostly molecular phylogenetic analyses (e.g., Chase et al., 1993; Chase et al., 1995; Bremer et al., 1994; Struwe et al., 1994; Naudot et al., 1995; Nickrent & Soltis, 1995; Soltis et al., 1995; Gadek et al., 1996; Gustafsson et al., 1996; Morton et al., 1996; Soltis & Soltis, 1997; Soltis et al., 1997; Anderberg et al., 1998; Backlund & B. Bremer, 1998; Bakker et al., 1998; Källersjö et al., 1998; Soltis et al., 1998; Thulin et al., 1998; further references above). The major differences are in the expansion of *Alismatales* (including also *Araceae*), *Caryophyllales* (including *Droseraceae*, *Nepenthaceae*, *Polygonaceae*, *Plumbaginaceae*, and several other families outside the traditional, core *Caryophyllales*), the recognition of a comparatively widely circumscribed *Rosales* (including *Rhamnaceae*, *Urticaceae*, *Moraceae*, and their allies), in the addition of a number of smaller orders (*Ceratophyllales*, *Acorales*, *Arecales*, *Proteales*, *Garryales*, *Aquifoliales*), and in the deletion of a few others (*Aristolochiales*, *Nymphaeales*, *Bromeliales*, *Trochodendrales*, *Zygophyllales*). Monocots and eudicots are not formally ranked and named because it is not yet clear at which level they should be recognized. The same problems occur with commelinoids (a phylogenetically derived subgroup of monocots) and with rosids and asterids (subgroups of eudicots), although these are commonly known as subclasses *Commelinidae*, *Rosidae*, and *Asteridae*, respectively.

Well supported ordinal interrelationships are shown in Figure 1. Interrelationships among the basal branches of the tree and the position of the root of the flowering plant phylogeny remain elusive. Within the eudicots there is increasing support for a large subgroup with predominantly pentamerous and isomerous flowers, the core eudicots, mainly comprising *Caryophyllales*, *Santalales*, *Saxifragales*, rosids, and asterids. Rosids and asterids each comprise two large subgroups, *eurosids* I and II and *euasterids* I and II, also receiving increasing support as monophyletic. These correspond to the similarly numbered rosid and asterid clades of Chase et al. (1993).

Under each of the supraordinal groups of monocots, commelinoids, core eudicots, rosids, etc., there are a number of families listed without assignment to order. These families are known to belong within the major group under which they are listed, but their ordinal position is still uncertain. Similarly, *Amborellaceae*, *Austrobaileyaceae*, *Cannellaceae*, etc., are listed at the beginning because

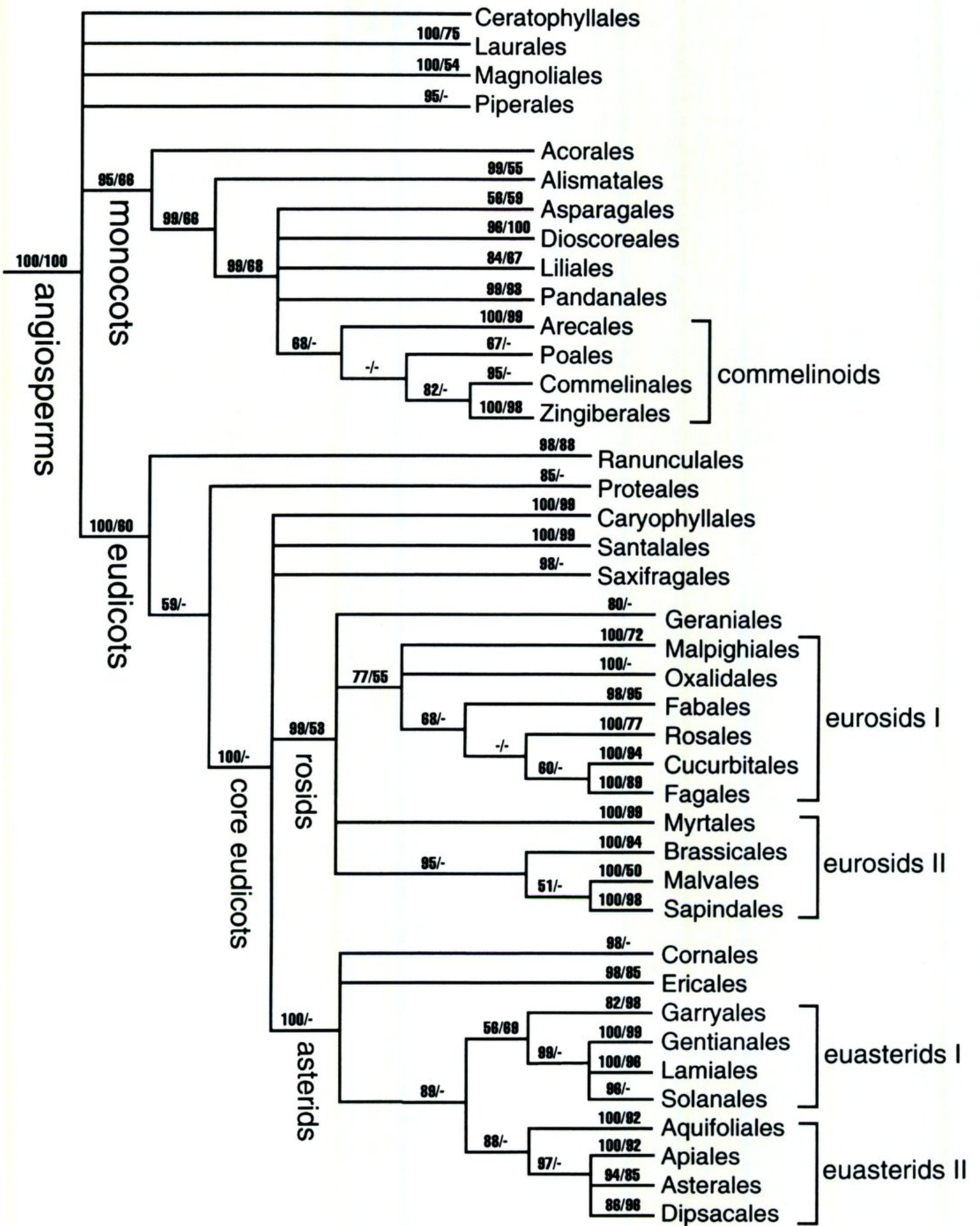


Figure 1. Phylogenetic interrelationships of the orders of flowering plants, compiled from recent cladistic analyses cited in the text. Jackknife support is given on the branches (a dash for values < 50%), first jackknife values from analysis of 545 sequences of the *rbcL*, *atpB*, and 18S rDNA genes (D. E. Soltis, M. W. Chase, P. S. Soltis, D. Albach, M. E. Mort, V. Savolainen, M. Zanis & J. S. Farris, unpublished, in prep.) and second jackknife values from analysis of 2538 *rbcL* sequences (Källersjö et al., 1998).

they belong neither in any of the phylogenetically "basal" orders at the beginning nor in the monocots or eudicots. Furthermore, families listed directly under monocots without an order are monocots but not commelinoids, and families similarly listed directly under eudicots and core eudicots are eudicots or core eudicots, respectively, but neither rosids nor asterids. At the end of the system is an additional list of families of uncertain position. Most of these are probably eudicots (including core eudicots, rosids, and asterids), but so far there are no firm data supporting their placement anywhere within the eudicots.

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CLASSIFICATION OF FLOWERING PLANTS

- Amborellaceae
 Austrobaileyaceae
 Canellaceae
 Chloranthaceae
 Hydnoraceae
 Illiciaceae
 Nymphaeaceae
 [+Cabombaceae]
 Rafflesiaceae
 Schisandraceae
 Trimeniaceae
 Winteraceae
- Ceratophyllales Bisch.
 Ceratophyllaceae
- Laurales Perleb
 Atherospermataceae
 Calycanthaceae
 Gomortegaceae
 Hernandiaceae
 Lauraceae
 Monimiaceae
 Siparunaceae
- Magnoliales Bromhead
 Annonaceae
 Degeneriaceae
 Eupomatiaceae
 Himantandraceae
 Magnoliaceae
 Myristicaceae
- Piperales Dumort.
 Aristolochiaceae
 Lactoridaceae
 Piperaceae
 Saururaceae
- MONOCOTS**
- Corsiaceae
 Japonoliriaceae
 Nartheciaceae
 Petrosaviaceae
 Triuridaceae
- Acorales Reveal
 Acoraceae
- Alismatales Dumort.
 Alismataceae
 Aponogetonaceae
 Araceae
 Butomaceae
 Cymodoceaceae
 Hydrocharitaceae
 Juncaginaceae
- Limnocharitaceae
 Posidoniaceae
 Potamogetonaceae
 Ruppiaceae
 Scheuchzeriaceae
 Tofieldiaceae
 Zosteraceae
- Asparagales Bromhead
 Agapanthaceae
 Agavaceae
 Alliaceae
 Amaryllidaceae
 Anemarrhenaceae
 Anthericaceae
 Aphyllanthaceae
 Asparagaceae
 Asphodelaceae
 Asteliaceae
 Behniaceae
 Blandfordiaceae
 Boryaceae
 Convallariaceae
 Doryanthaceae
 Hemerocallidaceae
 Herreriaceae
 Hesperocallidaceae
 Hyacinthaceae
 Hypoxidaceae
 Iridaceae
 Ixioliriaceae
 Lanariaceae
 Laxmanniaceae
 Orchidaceae
 Tecophilaeaceae
 Themidaceae
 Xanthorrhoeaceae
 Xeronemataceae
- Dioscoreales Hook. f.
 Burmanniaceae
 Dioscoreaceae
 Taccaceae
 Thismiaceae
 Trichopodaceae
- Liliales Perleb
 Alstroemeriaceae
 Campynemataceae
 Colchicaceae
 Liliaceae
 Luzuriagaceae
 Melanthiaceae
 Philesiaceae
 Ripogonaceae
 Smilacaceae

CLASSIFICATION OF FLOWERING PLANTS
(cont'd.)

Pandanales Lindl.

Cyclanthaceae
Pandanaceae
Stemonaceae
Velloziaceae

Proteales Dumort.

Nelumbonaceae
Platanaceae
Proteaceae

COMMELINOIDS

Abolbodaceae
Bromeliaceae
Dasypogonaceae
Hanguanaceae
Mayacaceae
Rapateaceae

Ranunculales Dumort.

Berberidaceae
Circaeasteraceae
[+Kingdoniaceae]
Eupteleaceae
Lardizabalaceae
Menispermaceae
Papaveraceae
[+Fumariaceae]
[+Pteridophyllaceae]
Ranunculaceae

Arecales Bromhead

Areaceae

Commelinales Dumort.

Commelinaceae
Haemodoraceae
Philydraceae
Pontederiaceae

CORE EUDICOTS

Aextoxicaceae
Berberidopsidaceae
Dilleniaceae
Gunneraceae
Myrothamnaceae
Vitaceae

Poales Small

Anarthriaceae
Centrolepidaceae
Cyperaceae
Ecdeiocoleaceae
Eriocaulaceae
Flagellariaceae
Hydatellaceae
Joinvilleaceae
Juncaceae
Poaceae
Prioniaceae
Restionaceae
Sparganiaceae
Thurniaceae
Typhaceae
Xyridaceae

Caryophyllales Perleb

Achatocarpaceae
Aizoaceae
Amaranthaceae
Ancistrocladaceae
Asteropeiaceae
Basellaceae
Cactaceae
Caryophyllaceae
Didiereaceae
Dioncophyllaceae
Droseraceae
Drosophyllaceae
Frankeniaceae
Molluginaceae
Nepenthaceae
Nyctaginaceae
Physenaceae
Phytolaccaceae
Plumbaginaceae
Polygonaceae
Portulacaceae
Rhabdodendraceae
Sarcobataceae
Simmondsiaceae
Stegnospermataceae
Tamaricaceae

Zingiberales Griseb.

Cannaceae
Costaceae
Heliconiaceae
Lowiaceae
Marantaceae
Musaceae
Strelitziaceae
Zingiberaceae

Santalales Dumort.

Olacaceae
Opiliaceae

EUDICOTS

Buxaceae
Didymelaceae
Sabiaceae
Trochodendraceae
[+Tetracentraceae]

CLASSIFICATION OF FLOWERING PLANTS

(cont'd.)

- | | |
|----------------------|--------------------|
| Loranthaceae | Fabales Bromhead |
| Misodendraceae | Fabaceae |
| Santalaceae | Polygalaceae |
| | Quillajaceae |
| | Surianaceae |
| Saxifragales Dumort. | |
| Altingiaceae | Fagales Engl. |
| Cercidiphyllaceae | Betulaceae |
| Crassulaceae | Casuarinaceae |
| Daphniphyllaceae | Fagaceae |
| Grossulariaceae | Juglandaceae |
| Haloragaceae | Myricaceae |
| Hamamelidaceae | Nothofagaceae |
| Iteaceae | Rhoipteleaceae |
| Paeoniaceae | Ticodendraceae |
| Penthoraceae | |
| Pterostemonaceae | Malpighiales Mart. |
| Saxifragaceae | Achariaceae |
| Tetracarpaeaceae | Balanopaceae |
| | Caryocaraceae |
| ROSIDS | Chrysobalanaceae |
| Aphloiaceae | Clusiaceae |
| Crossosomataceae | Dichapetalaceae |
| Ixerbaceae | Erythroxylaceae |
| Krameriaceae | Euphorbiaceae |
| Picramniaceae | Euphroniaceae |
| Podostemaceae | Flacourtiaceae |
| Stachyuraceae | Goupiaceae |
| Staphyleaceae | Hugoniaceae |
| Tristichaceae | Humiriaceae |
| Zygophyllaceae | Irvingiaceae |
| | Ixonanthaceae |
| Geraniales Dumort. | Lacistemataceae |
| Francoaceae | Linaceae |
| Geraniaceae | Malesherbiaceae |
| [+Hypseocharitaceae] | Malpighiaceae |
| Greyiaceae | Medusagynaceae |
| Ledocarpaceae | Ochnaceae |
| Melianthaceae | Pandaceae |
| Vivianiaceae | Passifloraceae |
| | Putranjivaceae |
| EUROSIDS I | Quiinaceae |
| Celastraceae | Rhizophoraceae |
| Huaceae | Salicaceae |
| Parnassiaceae | Scyphostegiaceae |
| [+Lepuropetalaceae] | Trigoniaceae |
| Stackhousiaceae | Turneraceae |
| | Violaceae |
| Cucurbitales Dumort. | Oxalidales Heintze |
| Anisophylleaceae | Cephalotaceae |
| Begoniaceae | Connaraceae |
| Coriariaceae | Cunoniaceae |
| Corynocarpaceae | Elaeocarpaceae |
| Cucurbitaceae | Oxalidaceae |
| Daticaceae | Tremandraceae |
| Tetramelaceae | |

CLASSIFICATION OF FLOWERING PLANTS
(cont'd.)

Rosales Perleb
Barbeyaceae
Cannabaceae
Cecropiaceae
Celtidaceae
Dirachmaceae
Elaeagnaceae
Moraceae
Rhamnaceae
Rosaceae
Ulmaceae
Urticaceae

EUROSIDS II

Tapisciaceae

Brassicales Bromhead

Akaniaceae
[+Bretschneideraceae]
Bataceae
Brassicaceae
Caricaceae
Emblingiaceae
Gyrostemonaceae
Koeberliniaceae
Limnanthaceae
Moringaceae
Pentadiplandraceae
Resedaceae
Salvadoraceae
Setchellanthaceae
Tovariaceae
Tropaeolaceae

Malvales Dumort.

Bixaceae
[+Diegodendraceae]
Cistaceae
Cochlospermaceae
Dipterocarpaceae
Malvaceae
Muntingiaceae
Neuradaceae
Sarcolaenaceae
Sphaerosepalaceae
Thymelaeaceae

Myrtales Rchb.

Alzateaceae
Combretaceae
Crypteroniaceae
Heteropyxidaceae
Lythraceae
Melastomataceae
Memecylaceae
Myrtaceae
Oliniaceae

Onagraceae
Penaeaceae
Psiloxylaceae
Rhynchocalycaceae
Vochysiaceae

Sapindales Dumort.

Anacardiaceae
Biebersteiniaceae
Burseraceae
Kirkiaceae
Meliaceae
Nitrariaceae
[+Peganaceae]
Rutaceae
Sapindaceae
Simaroubaceae

ASTERIDS

Cornales Dumort.
Cornaceae
[+Nyssaceae]
Grubbiaceae
Hydrangeaceae
Hydrostachyaceae
Loasaceae

Ericales Dumort.

Actinidiaceae
Balsaminaceae
Clethraceae
Cyrillaceae
Diapensiaceae
Ebenaceae
Ericaceae
Fouquieriaceae
Halesiaceae
Lecythidaceae
Marcgraviaceae
Myrsinaceae
Pellicieraceae
Polemoniaceae
Primulaceae
Roridulaceae
Sapotaceae
Sarraceniaceae
Styracaceae
Symplocaceae
Ternstroemiaceae
Tetrameristaceae
Theaceae
Theophrastaceae

EUASTERIDS I

Boraginaceae
Plocospermataceae
Vahliaceae

CLASSIFICATION OF FLOWERING PLANTS
(cont'd.)

Garryales Lindl.
Aucubaceae
Eucommiaceae
Garryaceae
Oncothecaceae

Gentianales Lindl.
Apocynaceae
Gelsemiaceae
Gentianaceae
Loganiaceae
Rubiaceae

Lamiales Bromhead
Acanthaceae
Avicenniaceae
Bignoniaceae
Buddlejaceae
Byblidaceae
Cyclocheilaceae
Gesneriaceae
Lamiaceae
Lentibulariaceae
Myoporaceae
Oleaceae
Orobanchaceae
Paulowniaceae
Pedaliaceae
[+Martyniaceae]
Phrymaceae
Plantaginaceae
Schlegeliaceae
Scrophulariaceae
Stilbaceae
Tetrachondraceae
Verbenaceae

Solanales Dumort.
Convolvulaceae
Hydroleaceae
Montiniaceae
Solanaceae
Sphenocleaceae

EUASTERIDS II

Adoxaceae
Bruniaceae
Carlemanniaceae
Columelliaceae
[+Desfontainiaceae]
Eremosynaceae
Escalloniaceae
Icacinaceae
Polyosmaceae
Sphenostemonaceae
Tribelaceae

Apiales Nakai
Apiaceae
Araliaceae
Aralidiaceae
Griselinaceae
Melanophyllaceae
Pittosporaceae
Torricelliaceae

Aquifoliales Senft
Aquifoliaceae
Helwingiaceae
Phyllonomaceae

Asterales Lindl.
Alseuosmiaceae
Argophyllaceae
Asteraceae
Calyceraceae
Campanulaceae
[+Lobeliaceae]
Carpodetaceae
Donatiaceae
Goodeniaceae
Menyanthaceae
Pentaphragmataceae
Phellinaceae
Rousseaceae
Stylidiaceae

Dipsacales Dumort.
Caprifoliaceae
Diervillaceae
Dipsacaceae
Linnaeaceae
Morinaceae
Valerianaceae

FAMILIES OF UNCERTAIN POSITION

Balanophoraceae
Bonnetiaceae
Cardiopteridaceae
Ctenolophonaceae
Cynomoriaceae
Cytinaceae
Dipentodontaceae
Elatinaceae
Geissolomataceae
Hoplostigmataceae
Kaliphoraceae
Lepidobotryaceae
Lissocarpaceae
Lophopyxidaceae
Medusandraceae
Metteniusaceae
Mitrastemonaceae
Paracryphiaceae

CLASSIFICATION OF FLOWERING PLANTS
(cont'd.)

Pentaphragaceae
Peridiscaceae
Plagiopteraceae
Pottingeriaceae
Sladeniaceae
Strasburgeriaceae
Tepuianthaceae

ORDINAL SYNONYMS

Acanthales Lindl.
= Lamiales
Acerales Lindl.
= Sapindales
Actinidiales Takht. ex Reveal
= Ericales
Adoxales Nakai
- not accepted, family under
euasterids II
Aesculales Bromhead
= Sapindales
Agavales Hutch.
= Asparagales
Alliales Traub
= Asparagales
Alstroemeriales Hutch.
= Liliales
Altingiales Doweld
= Saxifragales
Amaranthales Dumort.
= Caryophyllales
Amaryllidales Bromhead
= Asparagales
Ambrosiales Dumort.
= Asterales
Ammiales Small
= Apiales
Amomales Lindl.
= Zingiberales
Ancistrocladales Takht.
= Caryophyllales
Annonales Lindl.
= Magnoliales
Anthobolales Dumort.
= Santalales
Apocynales Bromhead
= Gentianales
Aponogetonales Hutch.
= Alismatales
Arales Dumort.
= Alismatales
Araliales Reveal
= Apiales
Aralidiales Takht. ex Reveal
= Apiales
Aristolochiales Dumort.
= Piperales

Asarales Horan.
= Piperales
Asclepiadales Dumort.
= Gentianales
Asteliales Dumort.
= Asparagales
Atriplicales Horan.
= Caryophyllales
Aucubales Takht.
= Garryales
Austrobaileyales Takht. ex Reveal
- not accepted, family at beginning
of system
Avenales Bromhead
= Poales
Balanopales Engl.
= Malpighiales
Balanophorales Dumort.
- not accepted, family unplaced
Balsaminales Lindl.
= Ericales
Barbeyales Takht. & Reveal
= Rosales
Batales Engl.
= Brassicales
Begoniales Dumort.
= Cucurbitales
Berberidales Dumort.
= Ranunculales
Betulales Bromhead
= Fagales
Biebersteiniales Takht.
= Sapindales
Bignoniales Lindl.
= Lamiales
Bixales Lindl.
= Malvales
Boraginales Dumort.
- not accepted, family under
euasterids I
Brexiales Lindl.
- not accepted, family under
eurosids I
Bromeliales Dumort.
- not accepted, family under
commelinoids
Bruniales Dumort.
- not accepted, family under
euasterids II
Brunoniales Lindl.
= Asterales
Burmannaiales Heintze
= Dioscoreales
Burserales Baskerville
= Sapindales
Butomales Hutch.
= Alismatales

CLASSIFICATION OF FLOWERING PLANTS
(cont'd.)

- Buxales Takht. ex Reveal
 - not accepted, family under eudicots
 Byblidales Nakai ex Reveal
 = Lamiales
 Cactales Dumort.
 = Caryophyllales
 Callitrichales Dumort.
 = Lamiales
 Calycanthales Mart.
 = Laurales
 Calycerales Takht. ex Reveal
 = Asterales
 Campanulales Rchb.
 = Asterales
 Canellales Cronquist
 - not accepted, family at beginning of system
 Cannales Dumort.
 = Zingiberales
 Capparales Hutch.
 = Brassicales
 Caprifoliales Lindl.
 = Dipsacales
 Cardiopteridales Takht.
 - not accepted, family under euasterids II
 Carduales Small
 = Asterales
 Caricales L. D. Benson
 = Brassicales
 Cassiales Horan.
 = Fabales
 Casuarinales Lindl.
 = Fagales
 Celastrales Baskerville
 - not accepted, family under eurosids I
 Centrolepidales Takht.
 = Poales
 Cephalotales Nakai
 = Oxalidales
 Cercidiphyllales Hu ex Reveal
 = Saxifragales
 Chenopodiales Dumort.
 = Caryophyllales
 Chironiales Griseb.
 = Gentianales
 Chloranthales A. C. Sm. ex J. -F. Leroy
 - not accepted, family at beginning of system
 Cinchonales Lindl.
 = Gentianales
 Circaeasterales Takht.
 = Ranunculales
 Cistales Rchb.
 = Malvales
 Citrales Dumort.
 = Sapindales
 Cocosales Nakai
 = Arecales
 Colchicales Dumort.
 = Liliales
 Combretales Baskerville
 = Myrtales
 Connarales Takht. ex Reveal
 = Cunoniales
 Convolvulales Dumort.
 = Solanales
 Coriariales Lindl.
 = Cucurbitales
 Corylales Dumort.
 = Fagales
 Corynocarpales Takht.
 = Cucurbitales
 Crassulales Lindl.
 = Saxifragales
 Crossosomatales Takht. ex Reveal
 - not accepted, family under rosids
 Cunoniales Hutch.
 = Oxalidales
 Cyclanthales J. H. Schaffn.
 = Pandanales
 Cymodoceales Nakai
 = Alismatales
 Cynomoriales Burnett
 - not accepted, family unplaced
 Cyperales Hutch.
 = Poales
 Cytinales Dumort.
 - not accepted, family unplaced
 Daphnales Lindl.
 = Malvales
 Daphniphyllales Pulle ex Cronquist
 = Saxifragales
 Datiscales Dumort.
 = Cucurbitales
 Desfontainiales Takht.
 - not accepted, family under euasterids II
 Diapensiales Engl. & Gilg
 = Ericales
 Didymelales Takht.
 - not accepted, family under eudicots
 Dilleniales Hutch.
 - not accepted, family under core eudicots
 Dioncophyllales Takht. ex Reveal
 = Caryophyllales
 Diospyrales Prantl
 = Ericales
 Droserales Griseb.
 = Caryophyllales

CLASSIFICATION OF FLOWERING PLANTS
(cont'd.)

- Ebenales Engl.
= Ericales
- Elaeagnales Bromhead
= Rosales
- Elaeocarpaceae Takht.
= Oxalidales
- Elatiniales Nakai
- not accepted, family unplaced
- Elodeales Nakai
= Alismatales
- Empetrales Raf.
= Ericales
- Eriocaulales Nakai
= Poales
- Eucommiales Nemejc ex Cronquist
= Garryales
- Euphorbiales Lindl.
= Malpighiales
- Eupomatiales Takht. ex Reveal
= Magnoliales
- Eupteleales Hu ex Reveal
= Ranunculales
- Euryalales H.L.Li
- not accepted, family at beginning
of system
- Ficales Dumort.
= Rosales
- Flacourtiiales Heintze
= Malpighiales
- Fouquieriales Takht. ex Reveal
= Ericales
- Francoales Takht.
= Geraniales
- Frangulales Wirtg.
= Rosales
- Galiales Bromhead
= Gentianales
- Geissolomatales Takht. ex Reveal
- not accepted, family unplaced
- Gesneriales Dumort.
= Lamiales
- Glaucidiales Takht. ex Reveal
= Ranunculales
- Globulariales Dumort.
= Lamiales
- Goodeniales Lindl.
= Asterales
- Greyiales Takht.
= Geraniales
- Grossulariales Lindl.
= Saxifragales
- Gunnerales Takht. ex Reveal
- not accepted, family under core
eudicots
- Gyrocarpaceae Dumort.
= Laurales
- Gyrostemonales Takht.
= Brassicales
- Haemodorales Hutch.
= Commelinales
- Haloragales Bromhead
= Saxifragales
- Hamamelidales Griseb.
= Saxifragales
- Hanguanales R. Dahlgren ex Reveal
= not accepted, family under
commelinoids
- Helleborales Nakai
= Ranunculales
- Helwingiales Takht.
= Aquifoliales
- Himantandrales Doweld & Shevryyova
= Magnoliales
- Hippuridales Pulle ex Reveal
= Lamiales
- Homaliales Bromhead
= Malpighiales
- Hortensiales Griseb.
= Cornales
- Hydatellales Cronquist
= Poales
- Hydnorales Takht. ex Reveal
- not accepted, family at beginning
of system
- Hydrangeales Nakai
= Cornales
- Hydrastidales Takht.
= Ranunculales
- Hydropeltidales (Bartl.) Spenn.
- not accepted, family
Nymphaeaceae at beginning of
system
- Hydrostachyales Diels ex Reveal
= Cornales
- Hypericales Dumort.
= Malpighiales
- Hypoxidales Takht.
= Asparagales
- Icacinales Tiegh. ex Reveal
- not accepted, family under
euasterids II
- Illiciales Hu ex Cronquist
- not accepted, family at beginning
of system
- Iridales Raf.
= Asparagales
- Ixiales Lindl.
= Asparagales
- Jasminales Dumort.
= Lamiales
- Juglandales Dumort.
= Fagales

CLASSIFICATION OF FLOWERING PLANTS
(cont'd.)

- Julianiales Engl.
 = Sapindales
 Juncaginales Hutch.
 = Alismatales
 Juncales Dumort.
 = Poales
 Lacistematales Baskerville
 = Malpighiales
 Lactoridales Takht. ex Reveal
 = Piperales
 Lardizabalales Loconte
 = Ranunculales
 Lecythidales Cronquist
 = Ericales
 Leitneriales Engl.
 = Sapindales
 Lentibulariales Lindl.
 = Lamiales
 Ligustrales Bartl. ex Bisch.
 = Lamiales
 Limnanthales Nakai
 = Brassicales
 Linales Baskerville
 = Malpighiales
 Loasales Bessey
 = Cornales
 Loganiales Lindl.
 = Gentianales
 Lonicerales T. Liebe
 = Dipsacales
 Loranthales Dumort.
 = Santalales
 Lythrales Caruel
 = Myrtales
 Marathrales Dumort.
 - not accepted, family
 Podostemaceae under rosids
 Mayacales Nakai
 - not accepted, family under
 commelinoids
 Medusagynales Takht.
 = Malpighiales
 Medusandrales Brenan
 - not accepted, family unplaced
 Melanthiales R. Dahlgren ex Reveal
 = Liliales
 Melastomatales Oliv.
 = Myrtales
 Meliales Lindl.
 = Sapindales
 Menispermales Bromhead
 = Ranunculales
 Menyanthales T. Yamaz. ex Takht.
 = Asterales
 Metteniusales Takht.
 - not accepted, family unplaced
 Mitrastemonales Makino
 - not accepted, family unplaced
 Monimiales Dumort.
 = Laurales
 Moringales Nakai
 = Brassicales
 Myricales Engl.
 = Fagales
 Myristicales Thomé
 = Magnoliales
 Myrothamnales Nakai ex Reveal
 - not accepted, family under core
 eudicots
 Myrsinales Spenn.
 = Ericales
 Najadales Dumort.
 = Alismatales
 Narcissales Dumort.
 = Asparagales
 Nartheciales Reveal & Zomlefer
 - not accepted, family under
 monocots
 Nelumbonales Reveal
 = Proteales
 Nepenthales Dumort.
 = Caryophyllales
 Nolanales Lindl.
 = Solanales
 Nyctaginales Dumort.
 = Caryophyllales
 Nymphaeales Dumort.
 = not accepted, family at beginning
 of system
 Ochnales Hutch. ex Reveal
 = Malpighiales
 Oenotherales Bromhead
 = Myrtales
 Olacales Benth.
 = Santalales
 Oleales Lindl.
 = Lamiales
 Onagrales Rchb.
 = Myrtales
 Opuntiales Willk.
 = Caryophyllales
 Orchidales Raf.
 = Asparagales
 Paeoniales Heintze
 = Saxifragales
 Pandales Engl. & Gilg
 = Malpighiales
 Papaverales Dumort.
 = Ranunculales
 Paracryphiales Takht.
 - not accepted, family unplaced
 Paridales Dumort.
 = Liliales

CLASSIFICATION OF FLOWERING PLANTS
(cont'd.)

- Parnassiales Nakai
- not accepted, family under eurosids I
- Passiflorales Dumort.
= Malpighiales
- Penaeales Lindl.
= Myrtales
- Petiveriales Lindl.
= Caryophyllales
- Petrosaviales Takht.
- not accepted, family under monocots
- Philydrales Dumort.
= Commelinales
- Physenales Takht.
= Caryophyllales
- Pinguiculales Dumort.
= Lamiales
- Pittosporales Lindl.
= Apiales
- Plantaginales Lindl.
= Lamiales
- Platanales J. H. Schaffn.
= Proteales
- Plumbaginales Lindl.
= Caryophyllales
- Podophyllales Dumort.
= Ranunculales
- Podostemales Lindl.
= not accepted, family under rosids
- Polemoniales Bromhead
= Ericales
- Polygalales Dumort.
= Fabales
- Polygonales Dumort.
= Caryophyllales
- Pontederiales Hook. f.
= Commelinales
- Portulacales Dumort.
= Caryophyllales
- Posidoniales Nakai
= Alismatales
- Potamogetonales Dumort.
= Alismatales
- Primulales Dumort.
= Ericales
- Quercuales Burnett
= Fagales
- Rafflesiales Oliv.
- not accepted, family at beginning of system
- Resedales Dumort.
= Brassicales
- Restionales J. H. Schaffn.
= Poales
- Rhamnales Dumort.
= Rosales
- Rhinanthales Dumort.
= Lamiales
- Rhizophorales Tiegh. ex Reveal
= Malpighiales
- Rhodorales Horan.
= Ericales
- Rhoipteleales Novák ex Reveal
= Fagales
- Roridulales Nakai
= Ericales
- Rubiales Dumort.
= Gentianales
- Ruppiales Nakai
= Alismatales
- Rutales Perleb
= Sapindales
- Sabiales Takht.
= not accepted, family under eudicots
- Salicales Lindl.
= Malpighiales
- Salvadorales R. Dahlgren ex Reveal
= Brassicales
- Samolales Dumort.
= Ericales
- Samydales Dumort.
= Malpighiales
- Sanguisorbales Dumort.
= Rosales
- Sapotales Hook. f.
= Ericales
- Sarraceniales Bromhead
= Ericales
- Scheuchzeriales B. Boivin
= Alismatales
- Scleranthales Dumort.
= Caryophyllales
- Scrophulariales Lindl.
= Lamiales
- Scyphostegiales Croizat
= Malpighiales
- Sedales Rchb.
= Saxifragales
- Silinales Lindl.
= Caryophyllales
- Simmondsiales Reveal
= Caryophyllales
- Smilacales Lindl.
= Liliales
- Stellariales Dumort.
= Caryophyllales
- Stylidiales Takht. ex Reveal
= Asterales
- Styracales Bisch.
= Ericales
- Taccales Dumort.
= Dioscoreales

CLASSIFICATION OF FLOWERING PLANTS
(cont'd.)

Tamales Dumort.
= Dioscoreales

Tamaricales Hutch.
= Caryophyllales

Tecophilaeales Traub ex Reveal
= Asparagales

Theales Lindl.
= Ericales

Theligonales Nakai
= Gentianales

Thymelaeales Willk.
= Malvales

Tiliales Caruel
= Malvales

Tofieldiales Reveal & Zomlefer
= Alismatales

Toricelliales Takht. ex Reveal
= Apiales

Tovariales Nakai
= Brassicales

Trilliales Takht.
= Liliales

Triuridales Hook. f.
- not accepted, family under monocots

Trochodendrales Takht. ex Cronquist
- not accepted, family under eudicots

Tropaeolales Takht. ex Reveal
= Brassicales

Turnerales Dumort.
= Malpighiales

Typhales Dumort.
= Poales

Ulmales Lindl.
= Rosales

Urticales Dumort.
= Rosales

Vacciniales Dumort.
= Ericales

Vallisneriales Nakai
= Alismatales

Velloziales R. Dahlgren ex Reveal
= Pandanales

Veratrales Dumort.
= Liliales

Verbenales Horan.
= Lamiales

Viburnales Dumort.
- not accepted, family under euasterids II

Vincales Horan.
= Gentianales

Violales Perleb
= Malpighiales

Vitales Reveal
- not accepted, family under core eudicots

Vochysiales Dumort.
= Myrtales

Winterales A. C. Sm. ex Reveal
- not accepted, family at beginning of system

Xyridales Lindl.
= Poales

Zosteriales Nakai
= Alismatales

Zygophyllales Takht.
- not accepted, family under rosids

SELECTED FAMILIAL SYNONYMS

Abrophyllaceae
= Carpodetaceae

Acanthochlamydeaceae
= Velloziaceae

Aceraceae
= Sapindaceae

Achradaceae
= Sapotaceae

Aegicerataceae
= Myrsinaceae

Agdestidaceae
= Phytolaccaceae

Aitoniaceae
= Meliaceae

Alangiaceae
= Cornaceae

Aloaceae
= Asphodelaceae

Alsinaceae
= Caryophyllaceae

Ambrosiaceae
= Asteraceae

Amygdalaceae
= Rosaceae

Androstachyaceae
= Euphorbiaceae

Antoniaceae
= Loganiaceae

Apodanthaceae
= Rafflesiaceae

Apostasiaceae
= Orchidaceae

Aptandraceae
= Olacaceae

Aristoleliaceae
= Elaeocarpaceae

Asclepiadaceae
= Apocynaceae

Asteranthaceae
= Lecythidaceae

Averrhoaceae
= Oxalidaceae

Avetraceae
= Dioscoreaceae

CLASSIFICATION OF FLOWERING PLANTS
(cont'd.)

- Balanitaceae
= Zygophyllaceae
- Barbeuiaceae
= Phytolaccaceae
- Barclayaceae
= Nymphaeaceae
- Barringtoniaceae
= Lecythidaceae
- Baueraceae
= Cunoniaceae
- Baxteriaceae
= Dasypogonaceae
- Bembiciaceae
= Flacourtiaceae
- Berzeliaceae
= Bruniaceae
- Bischofiaceae
= Euphorbiaceae
- Blepharocaryaceae
= Anacardiaceae
- Boerlagellaceae
= Sapotaceae
- Bombacaceae
= Malvaceae
- Boopidaceae
= Calyceraceae
- Bretschneideraceae
= Akaniaceae
- Brexiaceae
= Celastraceae
- Brunelliaceae
= Cunoniaceae
- Brunoniaceae
= Goodeniaceae
- Bumeliaceae
= Sapotaceae
- Burchardiaceae
= Colchicaceae
- Byttneriaceae
= Malvaceae
- Cabombaceae
= Nymphaeaceae
- Caesalpiniaceae
= Fabaceae
- Calectasiaceae
= Dasypogonaceae
- Callitrichaceae
= Plantaginaceae
- Calochortaceae
= Liliaceae
- Camelliaceae
= Theaceae
- Canotiaceae
= Celastraceae
- Cansjeraceae
= Opiliaceae
- Capparaceae
= Brassicaceae
- Carduaceae
= Asteraceae
- Cassythaceae
= Lauraceae
- Chailletiaceae
= Dichapetalaceae
- Chenopodiaceae
= Amaranthaceae
- Chionographidaceae
= Melanthiaceae
- Chloanthaceae
= Lamiaceae
- Cichoriaceae
= Asteraceae
- Cleomaceae
= Brassicaceae
- Cneoraceae
= Rutaceae
- Cobaeaceae
= Polemoniaceae
- Compositae
= Asteraceae
- Conostylidaceae
= Haemodoraceae
- Cordiaceae
= Boraginaceae
- Coridaceae
= Primulaceae
- Corokiaceae
= Argophyllaceae
- Corylaceae
= Betulaceae
- Croomiaceae
= Stemonaceae
- Cruciferae
= Brassicaceae
- Curtisiaceae
= Cornaceae
- Cuscutaceae
= Convolvulaceae
- Cyananthaceae
= Campanulaceae
- Cyanastraceae
= Tecophilaeaceae
- Cynocrambaceae nom. illeg.
= Rubiaceae
- Cyphiaceae
= Campanulaceae
- Cyphocarpaceae
= Campanulaceae
- Cypripediaceae
= Orchidaceae
- Dactylanthaceae
= Balanophoraceae

CLASSIFICATION OF FLOWERING PLANTS
(cont'd.)

Davidiaceae	Frangulaceae
= Cornaceae	= Rhamnaceae
Davidsoniaceae	Fumariaceae
= Cunoniaceae	= Papaveraceae
Decaisneaceae	Funkiaceae
= Lardizabalaceae	= Agavaceae
Desfontainiaceae	Galacaceae
= Columelliaceae	= Diapensiaceae
Dialypetalanthaceae	Geitonoplesiaceae
= Rubiaceae	= Hemerocallidaceae
Dianellaceae	Geniostomaceae
= Hemerocallidaceae	= Loganiaceae
Dichondraceae	Geosiridaceae
= Convolvulaceae	= Iridaceae
Diclidantheraceae	Gisekiaceae
= Polygalaceae	= Phytolaccaceae
Diegodendraceae	Glaucidiaceae
= Bixaceae	= Ranunculaceae
Dionaeaceae	Globulariaceae
= Droseraceae	= Plantaginaceae
Dracaenaceae	Goetzeaceae
= Convallariaceae	= Solanaceae
Duabangaceae	Gonystylaceae
= Lythraceae	= Thymelaeaceae
Duckeodendraceae	Gouaniaceae
= Solanaceae	= Rhamnaceae
Dulongiaceae nom. illeg.	Gramineae
= Phyllonomaceae	= Poaceae
Dysphaniaceae	Gronoviaceae
= Amaranthaceae	= Loasaceae
Ehretiaceae	Gustaviaceae
= Boraginaceae	= Lecythidaceae
Ellisiophyllaceae	Guttiferae
= Scrophulariaceae	= Clusiaceae
Empetraceae	Gyrocarpaceae
= Ericaceae	= Hernandiaceae
Epacridaceae	Halophilaceae
= Ericaceae	= Hydrocharitaceae
Eremolepidaceae	Halophytaceae
= Santalaceae	= Amaranthaceae
Eriospermaceae	Hectorellaceae
= Convallariaceae	= Portulacaceae
Erycibaceae	Heliotropiaceae
= Convolvulaceae	= Boraginaceae
Erythropalaceae	Heloniadaceae
= Olacaceae	= Melanthiaceae
Eucryphiaceae	Helosidaceae
= Cunoniaceae	= Balanophoraceae
Euryalaceae	Henriqueziaceae
= Nymphaeaceae	= Rubiaceae
Exocarpaceae	Hippocastanaceae
= Santalaceae	= Sapindaceae
Flindersiaceae	Hippocrateaceae
= Rutaceae	= Celastraceae
Foetidiaceae	Hippuridaceae
= Lecythidaceae	= Plantaginaceae

CLASSIFICATION OF FLOWERING PLANTS

(cont'd.)

Hortoniaceae	Lepuropetalaceae
= Monimiaceae	= Parnassiaceae
Hostaceae	Lilaeaceae
= Agavaceae	= Juncaginaceae
Humbertiaceae	Limoniaceae
= Convolvulaceae	= Plumbaginaceae
Hydrastidaceae	Liriodendraceae
= Ranunculaceae	= Magnoliaceae
Hydrocotylaceae	Lobeliaceae
= Araliaceae	= Campanulaceae
Hydropeltidaceae	Lomandraceae
= Nymphaeaceae	= Laxmanniaceae
Hydrophyllaceae	Lophiraceae
= Boraginaceae	= Ochnaceae
Hymenocardiaceae	Lophophytaceae
= Euphorbiaceae	= Balanophoraceae
Hypecoaceae	Luxemburgiaceae
= Papaveraceae	= Ochnaceae
Hypericaceae	Malaceae
= Clusiaceae	= Rosaceae
Hypseocharitaceae	Martyniaceae
= Geraniaceae	= Pedaliaceae
Idiospermaceae	Mastixiaceae
= Calycanthaceae	= Cornaceae
Illecebraceae	Medeolaceae
= Caryophyllaceae	= Liliaceae
Jasionaceae	Meliosmaceae
= Campanulaceae	= Sabiaceae
Jasminiaceae	Mendonciaceae
= Oleaceae	= Acanthaceae
Johnsoniaceae	Mesembryanthemaceae
= Hemerocallidaceae	= Aizoaceae
Julianiaceae	Mimosaceae
= Anacardiaceae	= Fabaceae
Kiggelariaceae	Monotaceae
= Flacourtiaceae	= Dipterocarpaceae
Kingdoniaceae	Monotropaceae
= Circaeasteraceae	= Ericaceae
Kirengeshomaceae	Mouririaceae
= Hydrangeaceae	= Memecylaceae
Labiatae	Moutabeaceae
= Lamiaceae	= Polygalaceae
Langsdorffiaceae	Myriophyllaceae
= Balanophoraceae	= Haloragaceae
Leeaceae	Mystropetalaceae
= Vitaceae	= Balanophoraceae
Leguminosae	Najadaceae
= Fabaceae	= Hydrocharitaceae
Leitneriaceae	Nandinaceae
= Simaroubaceae	= Berberidaceae
Lemnaceae	Napoleonaceae
= Araceae	= Lecythidaceae
Lennoaceae	Naucleaceae
= Boraginaceae	= Rubiaceae
Leoniaceae	Nectaropetalaceae
= Violaceae	= Erythroxylaceae

CLASSIFICATION OF FLOWERING PLANTS
(cont'd.)

Nelsoniaceae	Pistiaceae
= Acanthaceae	= Araceae
Nemacladaceae	Platystemonaceae
= Campanulaceae	= Papaveraceae
Nesogenaceae	Plumeriaceae
= Cyclocheilaceae	= Apocynaceae
Nolanaceae	Podoaceae
= Solanaceae	= Anacardiaceae
Nolinaceae	Podophyllaceae
= Convallariaceae	= Berberidaceae
Nupharaceae	Polygonanthaceae
= Nymphaeaceae	= Anisophylleaceae
Nyctanthaceae	Potaliaceae
= Oleaceae	= Gentianaceae
Nyssaceae	Ptaeroxylaceae
= Cornaceae	= Rutaceae
Octoknemaceae	Pteridophyllaceae
= Olacaceae	= Papaveraceae
Oftiaceae	Punicaceae
= Scrophulariaceae	= Lythraceae
Ophiopogonaceae	Pyrolaceae
= Convallariaceae	= Ericaceae
Osyridaceae	Ranzaniaceae
= Santalaceae	= Berberidaceae
Pachysandraceae	Reaumuriaceae
= Buxaceae	= Tamaricaceae
Palmae	Retziaceae
= Arecaceae	= Stilbaceae
Papilionaceae	Rhinanthaceae
= Fabaceae	= Orobanchaceae
Peganaceae	Rhodoleiaceae
= Nitrariaceae	= Hamamelidaceae
Pentastemonaceae	Rhopalocarpaceae
= Stemonaceae	= Sphaerosepalaceae
Peperomiaceae	Rhynchothecaceae
= Piperaceae	= Ledocarpaceae
Periplocaceae	Roxburghiaceae
= Apocynaceae	= Stemonaceae
Peripterygiaceae	Ruscaceae
= Cardiopteridaceae	= Convallariaceae
Petermanniaceae	Saccifoliaceae
= Colchicaceae	= Gentianaceae
Petiveriaceae	Salaciaceae
= Phytolaccaceae	= Celastraceae
Philadelphaceae	Salicorniaceae
= Hydrangeaceae	= Amaranthaceae
Phormiaceae	Salpiglossidaceae
= Hemerocallidaceae	= Solanaceae
Phylicaceae	Sambucaceae
= Rhamnaceae	= Adoxaceae
Picrodendraceae	Samolaceae
= Euphorbiaceae	= Primulaceae
Pinguiculaceae	Saniculaceae
= Lentibulariaceae	= Apiaceae
Pistaciaceae	Sarcophytaceae
= Anacardiaceae	= Balanophoraceae

CLASSIFICATION OF FLOWERING PLANTS
(cont'd.)

- Sarcospermataceae
= Sapotaceae
Sargentodoxaceae
= Lardizabalaceae
Saurauiaceae
= Actinidiaceae
Sauvagesiaceae
= Ochnaceae
Scaevolaceae
= Goodeniaceae
Scepaceae
= Euphorbiaceae
Schoepfiaceae
= Olacaceae
Sclerophylacaceae
= Solanaceae
Scoliopaceae
= Liliaceae
Scybaliaceae
= Balanophoraceae
Scytopetalaceae
= Lecythidaceae
Selaginaceae
= Scrophulariaceae
Sesamaceae
= Pedaliaceae
Sesuviaceae
= Aizoaceae
Simethidaceae
= Hemerocallidaceae
Siphonodontaceae
= Celastraceae
Sonneratiaceae
= Lythraceae
Spigeliaceae
= Loganiaceae
Stenomeridaceae
= Dioscoreaceae
Sterculiaceae
= Malvaceae
Stilaginaceae
= Euphorbiaceae
Strychnaceae
= Loganiaceae
Stylobasiaceae
= Surianaceae
Stylocerataceae
= Buxaceae
Symphoremataceae
= Lamiaceae
Syringaceae
= Oleaceae
Tetracentraceae
= Trochodendraceae
Tetradiclidaceae
= Peganaceae
Tetragoniaceae
= Aizoaceae
Tetrastylidiaceae
= Olacaceae
Thalassiaceae
= Hydrocharitaceae
Theligonaceae
= Rubiaceae
Thunbergiaceae
= Acanthaceae
Tiliaceae
= Malvaceae
Trapaceae
= Lythraceae
Trapellaceae
= Pedaliaceae
Tribulaceae
= Zygophyllaceae
Tricyrtidaceae
= Liliaceae
Trilliaceae
= Melanthiaceae
Triplostegiaceae
= Valerianaceae
Uapacaceae
= Euphorbiaceae
Ullucaceae
= Basellaceae
Umbelliferae
= Apiaceae
Utriculariaceae
= Lentibulariaceae
Uvulariaceae
= Colchicaceae
Vacciniaceae
= Ericaceae
Viburnaceae
= Adoxaceae
Viscaceae
= Santalaceae
Vitaceae
= Lamiaceae
Walleriaceae
= Tecophilaeaceae
Wellstediaceae
= Boraginaceae
Xanthophyllaceae
= Polygalaceae
Xerophyllaceae
= Melanthiaceae
Zannichelliaceae
= Potamogetonaceae